

IN THE CLAIMS:

Please cancel withdrawn claims 32-36, and please substitute amended claims 1-31, 37 and 38 as follows:

1. (Amended) A cooler for electronic devices comprising:

(i) a heat exchange element having a first surface and a second surface, a blower with a radial type impeller, and an electric drive, wherein:

5 (ii) said heat exchange element comprises heat exchanging means provided on the first surface of said heat exchange element while the second surface provides thermal contact with a heat-radiating means;

10 (iii) said radial type impeller comprises a shroud with a flat surface on one side, a hub and brackets and a central inlet between the shroud and the hub, said brackets connecting the hub with the shroud, and said radial type impeller being positioned on the heat exchange element so that the heat exchanging means is surrounded by the radial type impeller and a cooling gas flows to
15 the radial type impeller from the central inlet through the heat exchanging means;

20 (iv) said electric drive comprises a magnetic rotor and a stator, said magnetic rotor being a substantially flat disk rotor comprising a central hole inside the substantially flat disk rotor and circumferential arrayed like poles, and said stator comprising circumferential arrayed coils whose axes are parallel

to an axis of rotation, said coils being mounted around the circumferential arrayed like poles, and wherein said magnetic rotor is placed on the shroud of the radial type impeller and connects with the shroud, the shaft of the electric drive is located inside the hub of the radial type impeller, and the central hole of the flat disk rotor substantially coincides with the central inlet.

2. (Amended) A cooler for electronic devices as claimed in claim 1, wherein said substantially flat disk rotor further comprises at least two magnetized flat rings having the central hole inside the rings and the circumferential arrayed like poles and being mounted perpendicularly to the axis of rotation, and said circumferential arrayed like poles of a first one of the magnetized rings being magnetized in opposite polarity and coinciding with the circumferential arrayed like poles of a second one of the magnetized rings in a projection at a plane normal to the axis of rotation, wherein said at least two flat rings are installed with a gap between said flat rings in a place where the magnetic rotor interacts with the stator, wherein a contact is provided between said flat rings axially beyond the gap, and wherein said coils of said stator are at least partially mounted at the gap between the circumferential arrayed like poles of the first one of the magnetized rings and the circumferential arrayed like poles of the second one of the magnetized rings.

3. (Amended) A cooler for electronic devices as claimed in claim 2, further including a cylindrical magnet, said cylindrical magnet being magnetized in an axial direction and placed coaxially to the shaft between said magnetized rings.

4. (Amended) A cooler for electronic devices as claimed in claim 1, wherein the heat exchanging means comprises pins and fins.

5. (Amended) A cooler for electronic devices as claimed in claim 1, wherein the heat-radiating means comprises an electronic device.

6. (Amended) A cooler for electronic devices as claimed in claim 1, wherein the heat-exchange element comprises a high heat-conducting material.

7. (Amended) A cooler for electronic devices as claimed in claim 1, wherein the heat-radiating means comprises a heat-pipe.

8. (Amended) A cooler for electronic devices as claimed in claim 1, wherein the brackets comprise axial blower blades.

9. (Amended) A cooler for electronic devices as claimed in claim 1, wherein one of the flat rings of the magnetic rotor is

flush-mounted with a flat surface of one side of the shroud of the radial type impeller.

10. (Amended) A cooler for electronic devices as claimed in claim 2, wherein the flat rings are magnetized in such a way that the poles of each flat ring are like poles, while in relation to the poles of another flat ring they are unlike poles, and wherein
5 the magnetic rotor poles comprise teeth on outer circumferences of said flat rings, and said teeth coincide along a direction of said rotation axis.

11. (Amended) A cooler for electronic devices as claimed in claim 1, wherein the radial type impeller comprises a drum type impeller.

12. (Amended) A cooler for electronic devices as claimed in claim 1, wherein the radial type impeller comprises a disk-type impeller, and said disk type impeller comprises at least one disk.

13. (Amended) A cooler for electronic devices as claimed in claim 1, wherein the stator poles are placed in a space between said magnetic rotor poles.

14. (Amended) A cooler for electronic devices comprising:

(i) a heat exchange element having a first surface and a second surface, a blower with a radial type impeller and an electric drive, wherein:

5 (ii) said heat exchange element comprises heat exchanging means and heat exchanging channels provided on the first surface of said heat exchange element while the second surface provides thermal contact with a heat-radiating means;

10 (iii) said radial type impeller comprises a shroud with a flat surface from one side, a hub, brackets, and a central inlet between the shroud and the hub, said brackets connecting the hub with the shroud;

15 (iv) said heat exchanging means is surrounded by the radial type impeller, said radial type impeller is surrounded by said heat exchanging channels, and a cooling gas flows from the central inlet through the heat exchanging means, the radial type impeller and the heat exchanging channels in series;

20 (v) said electric drive comprises a magnetic rotor and a stator, said magnetic rotor comprising at least two magnetized flat rings having a hole inside said rings and circumferential arrayed like poles and being mounted perpendicularly to an axis of rotation, and said circumferential arrayed like poles of a first one of the magnetized rings being magnetized in opposite polarity and coinciding with the circumferential arrayed like
25 poles of a second one of the rings in a projection at a plane normal to the axis of rotation, wherein said at least two flat rings are installed with a gap between said flat rings in a place

where the magnetic rotor interacts with the stator, wherein a contact is provided between said flat ring axially beyond the gap, wherein said stator comprises circumferential arrayed coils whose axes are parallel to the axis of rotation, said coils being at least partially mounted at the gap between the circumferential arrayed like poles of the first one of the magnetized rings and the circumferential arrayed like poles of the second one of the magnetized rings, and wherein one of the flat rings of said magnetic rotor is placed on the shroud of the radial type impeller, a shaft of the electric drive is located inside the hub of the radial type impeller, and the hole inside the rings substantially coincides with the central inlet.

15. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the heat exchanging means comprises at least one of pins and fins.

16. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the heat exchanging channels comprise rows of profiled elements.

17. (Amended) A cooler for electronic devices as claimed in claim 16, wherein said profiled elements comprise at least one of pins and fins.

18. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the heat exchanging channels are spiral-like and bent in a direction of blower rotation.

19. (Amended) A cooler for electronic devices as claimed in claim 14, wherein inlets of the heat exchanging channels are oriented in a direction of propagation of an output of the cooling gas flow produced by the radial type impeller.

20. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the heat exchanging channels have a constant width.

21. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the heat radiating means comprises an electronic device.

22. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the heat exchanging means comprises a high heat-conducting material.

23. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the heat radiating means comprises a heat-pipe.

24. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the brackets comprise axial blower blades.

25. (Amended) A cooler for electronic devices as claimed in claim 14, wherein one of the flat rings of the magnetic rotor is flush-mounted with a flat surface of one side of the shroud of the radial type impeller.

26. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the flat rings are magnetized in a such way that the poles of each flat ring are like poles, while in relation to the poles of another flat ring they are unlike poles, and wherein the magnetic rotor poles comprise teeth on outer
5 circumferences of said flat rings.

27. (Amended) A cooler for electronic devices as claimed in claim 14, further including a cylindrical magnet, said cylindrical magnet being magnetized in an axial direction and placed coaxially to the shaft between said magnetized rings.

28. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the radial type impeller comprises a drum type impeller.

29. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the radial type impeller comprises a disk type impeller, and said disk type impeller comprises at least one disk.

30. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the stator comprises a printed circuit board, and said printed circuit board covers the heat exchanging channels from an opposite side of the second surface which provides thermal contact with the heat-radiating means.

31. (Amended) A cooler for electronic devices as claimed in claim 14, wherein the stator poles are placed in a space between the said magnetic rotor poles.

37. (Amended) A cooler for electronic devices comprising:

(i) at least two heat exchange elements, each of said heat exchange elements having a first surface and a second surface, a blower with a radial type impeller, a heat radiating means and an electric drive, wherein:

(ii) said heat exchange element comprises heat exchanging means provided on the first surface of each of said heat exchange elements while the second surface of each heat exchange element provides thermal contact with the heat-radiating means;

(iii) said radial type impeller comprises two shrouds, each of said shrouds having a flat surface on one side, a hub and a central inlet between the shroud and the hub, and wherein said radial type impeller is positioned on the heat exchange element so that a cooling gas flows from the central inlet through the radial type impeller and the heat exchanging means in series;

(iv) said electric drive comprises a magnetic rotor and a stator, said magnetic rotor being a substantially flat disk rotor comprising circumferential arrayed like poles, and said stator comprising circumferential arrayed coils whose axes are parallel to an axis of rotation, said coils being mounted around the circumferential arrayed like poles, wherein said magnetic rotor is placed on the shrouds of the radial type impeller and connects with the shrouds, the shaft of the electric drive is located inside the hub of the radial type impeller, and said substantially flat disk rotor further comprises at least two magnetized flat rings having circumferential arrayed like poles and being mounted perpendicularly to the axis of rotation, said circumferential arrayed like poles of a first one of the magnetized rings being magnetized in opposite polarity and coinciding with the circumferential arrayed like poles of a second one of the magnetized rings in a projection at a plane normal to the axis of rotation, wherein said at least two flat rings are installed with a gap between said flat rings in a place where the magnetic rotor interacts with the stator, wherein a contact is provided between said flat ring axially beyond the gap, and said coils of said stator are at least partially mounted at the gap between the circumferential arrayed like poles of the first one of the magnetized rings and the circumferential arrayed like poles of the second one of the magnetized rings, and wherein said heat radiating means comprises at least one heat pipe that

is in contact with two second surfaces of said at least two heat exchange elements.

38. (Amended) A cooler for electronic devices comprising:

(i) a heat exchange element having a first surface and a second surface, a blower with a radial type impeller, a heat radiating means and an electric drive, wherein:

5 (ii) said heat exchange element comprises heat exchanging means provided on the first surface of said heat exchange element;

10 (iii) said radial type impeller comprises at least two shrouds, each of said at least two shrouds having a flat surface on one side, work elements on another side, a hub, and a central inlet between the work elements and the hub, said shrouds being connected with the hub, and wherein said radial type impeller is surrounded by said heat exchanging means and a cooling gas flows from the central inlet through the radial type impeller and the
15 heat exchanging means in series;

20 (iv) said electric drive comprises a magnetic rotor and a stator, said magnetic rotor comprising at least two magnetized flat rings having circumferential arrayed like poles and being mounted perpendicularly to an axis of rotation, said circumferential arrayed like poles of a first one of the magnetized rings being magnetized in opposite polarity to the circumferential arrayed like poles of a second one of the magnetized rings in a projection at a plane normal to the axis of

rotation, wherein said at least two flat rings being installed
25 with a gap between said flat rings in a place where the magnetic
rotor interacts with the stator, wherein a contact is provided
between said flat ring axially beyond the gap, and said stator
comprises circumferential arrayed coils whose axes are parallel
to the axis of rotation, said coils being at least partially
30 mounted at the gap between the circumferential arrayed like poles
of a first one of the magnetized rings and the circumferential
arrayed like poles of a second one of the magnetized rings,
wherein each of the flat rings of said magnetic rotor is placed
on the flat surface of each of the at least two shrouds of the
35 radial type impeller and connects with them, and a shaft of the
electric drive is located inside the hub of the radial type
impeller, and wherein said stator is located on a flat plate that
connects with the heat exchanging means, and the heat-radiating
means is located between the heat exchanging means.